DEFENSE INFORMATION SYSTEMS AGENCY
JOINT INTEROPERABILITY TEST COMMAND
P.O. BOX 12798
FORT HUACHUCA, ARIZONA 85670-2798

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of the Interactive Intelligence Customer
Interaction Center (CIC) with Software Release 2.4

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information
Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information
Technology and National Security Systems," 8 March 2006

1. References (a) and (b) establish the Defense Information Systems Agency, JITC, as the
responsible organization for interoperability test certification. Additional references are
provided in enclosure 1.

2. Interactive Intelligence CIC with Software Release 2.4 is hereinafter referred to as the System
Under Test (SUT). The SUT meets the interface requirements and all required functional
capabilities and is certified for joint use within the Defense Switched Network (DSN). The SUT
met the interface and functional requirements for Customer Premise Equipment (CPE)
Automated Receiving Devices (ARD) set forth in appendix 7 of reference (c). The SUT analog
interface is certified for use with any switching system on the DSN Approved Products List
(APL) that offers a certified analog interface. The SUT Digital Transmission Link Level 1 (T1)
Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) interface is certified
specifically with the following switches on the DSN APL: the Alcatel-Lucent Class 5Electronic
Switching System (5ESS), Compact Digital Exchange (CDX), and Very Compact Digital
Exchange (VCDX), the Avaya S8700, S8710, and S8720, and the Siemens Elektronisches
Wählsystem Digital (EWSD). Testing was conducted using test procedures derived from
reference (d). No other configurations, features, or functions, except those cited within this
report, are certified by the JITC or authorized by the Program Management Office for use within
the DSN. This certification expires upon changes that affect interoperability, but no later than
three years from the date of this memorandum.

3. This certification is based on interoperability testing and review of the vendor's Letter of
Compliance (LoC). Interoperability testing was conducted by JITC at the Global Information
Grid Network Test Facility, Fort Huachuca, Arizona, from 17 through 19 December 2007.
Review of the vendor's LoC was completed on 31 December 2007. Enclosure 2 documents the
test results and describes the test configuration.

JITC Memo, JTE, Special Interoperability Test Certification of Interactive Intelligence Customer Interaction Center (CIC) with Software Release 2.4

4. The Functional Requirements used to evaluate the interoperability of the SUT and the interoperability statuses are indicated in table 1. This interoperability test status is based on the SUT's ability to meet:

   a. CPE automated receiving device requirements specified in reference (c) verified through JITC testing and/or vendor submission of LoC.

   b. The overall system interoperability performance derived from test procedures listed in reference (d).

   c. Assured services as defined in reference (e).

Table 1. SUT Functional Requirements and Interoperability Status

Interfaces	Critical	Certified	Functional Requirements	Status	GSCR Paragraph
T1 ISDN PRI NI-2 (ANSI T1.607)	No[1]	Yes	PCM-24 (C)	Met	7.5.5
			MLPP in accordance with GSCR, Section 3 (C)	Met	A7.5
			FCC Part 15/Part 68 (R)	Met	A7.5
			Auto Answer mode Settable to more than the equivalency of 4 ROUTINE rings (C)	Met	A7.5
			DISR compliance as applicable (R)	Met	A7.5
			ROUTINE precedence only in accordance with GSCR, Section 3.3 (R)	Met	A7.5.5
2-Wire Analog (GR-506-CORE)	No[1]	Yes	MLPP in accordance with GSCR, Section 3 (C)	Met	A7.5
			Auto Answer mode Settable to more than the equivalency of 4 ROUTINE rings (C)	Met	A7.5
			FCC Part 15/Part 68 (R)	Met	A7.5
			DTMF Outpulsing in accordance with GR-506-CORE (C)	Met	A7.5, 5.4.1, 5.4.2
			DISR compliance as applicable (R)	Met	A7.5
			ROUTINE precedence only in accordance with GSCR, Section 3.3 (R)	Met	A7.5.5
			Conformance to TIA/EIA-470-B (R)	Met	A7.5.1
	Yes	See note 2.	Security (R)	See note 2.	A7.6

LEGEND:
A	- Appendix	Mbps	- Megabits per second
ANSI	- American National Standards Institute	MLPP	- Multi-Level Precedence and Preemption
ARD	- Automated Receiving Device	NI-2	- National ISDN Standard 2
C	- Conditional	PCM-24	- Pulse Code Modulation - 24 Channels
DISA	- Defense Information Systems Agency	PCM-30	- Pulse Code Modulation - 30 Channels
DISR	- Department of Defense Information Technology Standards Registry	PRI	- Primary Rate Interface
DSS1	- Digital Subscriber Signaling 1	R	- Required
DTMF	- Dual Tone Multi-Frequency	SUT	- System Under Test
EIA	- Electronic Industries Alliance	T1	- Digital Transmission Link Level 1 (1.544 Mbps)
FCC	- Federal Communications Commission	T1.607	- ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
GR	- Generic Requirement		
GR-506-CORE	- LSSGR: Signaling for Analog Interfaces	TIA	- Telecommunications Industry Association
GSCR	- Generic Switching Center Requirements	TIA/EIA-470-B	- Performance and Compatibility Requirements for Telephone Sets with Loop Signaling
ISDN	- Integrated Services Digital Network		
LSSGR	- Local Access and Transport Area (LATA) Switching Systems Generic Requirements		

NOTES:
1   The ARD requirements can be met via one of the following interfaces: 2-Wire Analog, 2-Wire Digital, 4-Wire Digital, PCM-24, or PCM-30.
2   Security is tested by DISA-led Information Assurance test teams and published in a separate report.

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System

JITC Memo, JTE, Special Interoperability Test Certification of Interactive Intelligence Customer Interaction Center (CIC) with Software Release 2.4

Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.

6. The JITC point of contact is Capt Oskar Widecki, DSN 879-5269, commercial (520) 538-5269, FAX DSN 879-4347, or e-mail to oskar.widecki@disa.mil. The tracking number for the SUT is 0719101.

FOR THE COMMANDER:

2 Enclosures a/s

RICHARD A. MEADOR
Chief
Battlespace Communications Portfolio

JITC Memo, JTE, Special Interoperability Test Certification of Interactive Intelligence Customer Interaction Center (CIC) with Software Release 2.4

Distribution:
Joint Staff J6I, Room 1E596, Pentagon, Washington, DC 20318-6000
Joint Interoperability Test Command, Liaison, ATTN: TED/JT1, 2W24-8C, P.O. Box 4502, Falls Church, VA 22204-4502
Defense Information Systems Agency, Net-Centricity Requirements and Assessment Branch, ATTN: GE333, Room 244, P.O. Box 4502, Falls Church, VA 22204-4502
Office of Chief of Naval Operations (N71CC2), CNO N6/N7, 2000 Navy Pentagon, Washington, DC 20350
Headquarters U.S. Air Force, AF/XICF, 1800 Pentagon, Washington, DC 20330-1800
Department of the Army, Office of the Secretary of the Army, CIO/G6, ATTN: SAIS-IOQ, 107 Army Pentagon, Washington, DC 20310-0107
U.S. Marine Corps (C4ISR), MARCORSYSCOM, 2200 Lester St., Quantico, VA 22134-5010
DOT&E, Net-Centric Systems and Naval Warfare, 1700 Defense Pentagon, Washington, DC 20301-1700
U.S. Coast Guard, CG-64, 2100 2nd St. SW, Washington, DC 20593
Defense Intelligence Agency, 2000 MacDill Blvd., Bldg 6000, Bolling AFB, Washington, DC 20340-3342
National Security Agency, ATTN: DT, Suite 6496, 9800 Savage Road, Fort Meade, MD 20755-6496
Director, Defense Information Systems Agency, ATTN: GS235, Room 5W24-8A, P.O. Box 4502, Falls Church, VA 22204-4502
Office of Assistant Secretary of Defense (NII)/DoD CIO, Crystal Mall 3, 7th Floor, Suite 7000, 1851 S. Bell St., Arlington, VA 22202
Office of Under Secretary of Defense, AT&L, Room 3E144, 3070 Defense Pentagon, Washington, DC 20301
U.S. Joint Forces Command, J68, Net-Centric Integration, Communications, and Capabilities Division, 1562 Mitscher Ave., Norfolk, VA 23551-2488
Defense Information Systems Agency (DISA), ATTN: GS23 (Mr. McLaughlin), Room 5W23, 5275 Leesburg Pike (RTE 7), Falls Church, VA 22041

ADDITIONAL REFERENCES

(c)   Defense Information Systems Agency (DISA), "Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR), Errata Change 2," 14 December 2006, Revised 27 March 2007

(d)   Joint Interoperability Test Command, "Generic Switch Test Plan (GST), Change 2," 2 October 2006

(e)   Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01C, "Policy for Department of Defense Voice Services," 9 November 2007

CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Interactive Intelligence Customer Interaction Center (CIC) with Software Release 2.4; hereinafter referred to as the System Under Test (SUT).

2. PROPONENT. Information Technology Agency (ITA).

3. SPONSOR. Ms. Virginia Arreguin, GS-15, Information Technology Agency, 2511 Jefferson Davis Highway, Arlington, VA 22202, Email: Virginia.M.Arreguin@us.army.mil

4. TESTER. Joint Interoperability Test Command (JITC), Fort Huachuca, Arizona.

5. SYSTEM UNDER TEST DESCRIPTION. The SUT provides interactive voice response (IVR) services to call centers and office environments. Defense Switched Network (DSN) and Public Switched Telephone Network callers dial into the SUT. Once a call is established, the SUT will prompt the caller with a series of menus. The caller navigates the menus by pressing the appropriate touch-tone keys on their telephone.

The SUT can be configured to obtain information from the callers, e.g. account number, social security number, or other relevant information. The SUT can be configured to allow callers to obtain information and/or select to have their call routed to a live support agent. The live support agents can be distributed over an Internet Protocol network and connected to the SUT through an agent client application which resides on the respective agent's desktop utilizing network authentication. When the agent is available an incoming call can be routed to their desktop and telephone.

The SUT application supports two basic user types. Agent and administrative users connect to the SUT through the appropriate client application that can be installed locally on the user's desktop. Only the user with network authentication and the appropriate role can access the services appropriate to that user. Administrative users exist for the purpose of managing and configuring the SUT. Many agents can connect to the SUT simultaneously.

6. OPERATIONAL ARCHITECTURE. The Generic Switching Center Requirements (GSCR) DSN architecture in figure 2-1 depicts the relationship of the SUT to the DSN switches.

Figure 2-1. DSN Architecture

7. REQUIRED SYSTEM INTERFACES. Requirements specific to the SUT and interoperability results are listed in table 2-1. These requirements are derived from the GSCR Interface and Functional Requirements and were verified through JITC testing.

Table 2-1. SUT Functional Requirements and Interoperability Status

Interfaces	Critical	Certified	Functional Requirements	Status	GSCR Paragraph
T1 ISDN PRI NI-2 (ANSI T1.607)	No[1]	Yes	PCM-24 (C)	Met	7.5.5
			MLPP in accordance with GSCR, Section 3 (C)	Met	A7.5
			FCC Part 15/Part 68 (R)	Met	A7.5
			Auto Answer mode Settable to more than the equivalency of 4 ROUTINE rings (C)	Met	A7.5
			DISR compliance as applicable (R)	Met	A7.5
			ROUTINE precedence only in accordance with GSCR, Section 3.3 (R)	Met	A7.5.5
2-Wire Analog (GR-506-CORE)	No[1]	Yes	MLPP in accordance with GSCR, Section 3 (C)	Met	A7.5
			Auto Answer mode Settable to more than the equivalency of 4 ROUTINE rings (C)	Met	A7.5
			FCC Part 15/Part 68 (R)	Met	A7.5
			DTMF Outpulsing in accordance with GR-506-CORE (C)	Met	A7.5, 5.4.1, 5.4.2
			DISR compliance as applicable (R)	Met	A7.5
			ROUTINE precedence only in accordance with GSCR, Section 3.3 (R)	Met	A7.5.5
			Conformance to TIA/EIA-470-B (R)	Met	A7.5.1
	Yes	See note 2.	Security (R)	See note 2.	A7.6

LEGEND:

A	- Appendix		Mbps	- Megabits per second
ANSI	- American National Standards Institute		MLPP	- Multi-Level Precedence and Preemption
ARD	- Automated Receiving Device		NI-2	- National ISDN Standard 2
C	- Conditional		PCM-24	- Pulse Code Modulation - 24 Channels
DISA	- Defense Information Systems Agency		PCM-30	- Pulse Code Modulation - 30 Channels
DISR	- Department of Defense Information Technology Standards Registry		PRI	- Primary Rate Interface
			R	- Required
DSS1	- Digital Subscriber Signaling 1		SUT	- System Under Test
DTMF	- Dual Tone Multi-Frequency		T1	- Digital Transmission Link Level 1 (1.544 Mbps)
EIA	- Electronic Industries Alliance		T1.607	- ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
FCC	- Federal Communications Commission			
GR	- Generic Requirement		TIA	- Telecommunications Industry Association
GR-506-CORE	- LSSGR: Signaling for Analog Interfaces		TIA/EIA-470-B	- Performance and Compatibility Requirements for Telephone Sets with Loop Signaling
GSCR	- Generic Switching Center Requirements			
ISDN	- Integrated Services Digital Network			
LSSGR	- Local Access and Transport Area (LATA) Switching Systems Generic Requirements			

NOTES:
1   The ARD requirements can be met via one of the following interfaces: 2-Wire Analog, 2-Wire Digital, 4-Wire Digital, PCM-24, or PCM-30.
2   Security is tested by DISA-led Information Assurance test teams and published in a separate report.

8. TEST NETWORK DESCRIPTION. The SUT was tested at JITC's Global Information Grid Network Test Facility in a manner and configuration similar to that of the DSN operational environment. Testing the system's required functions and features was conducted using the test configurations depicted in figures 2-2 and 2-3. Figure 2-2 depicts the analog test configuration. Figure 2-3 depicts the Digital Transmission Link Level 1 (T1) Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) interface test configuration.
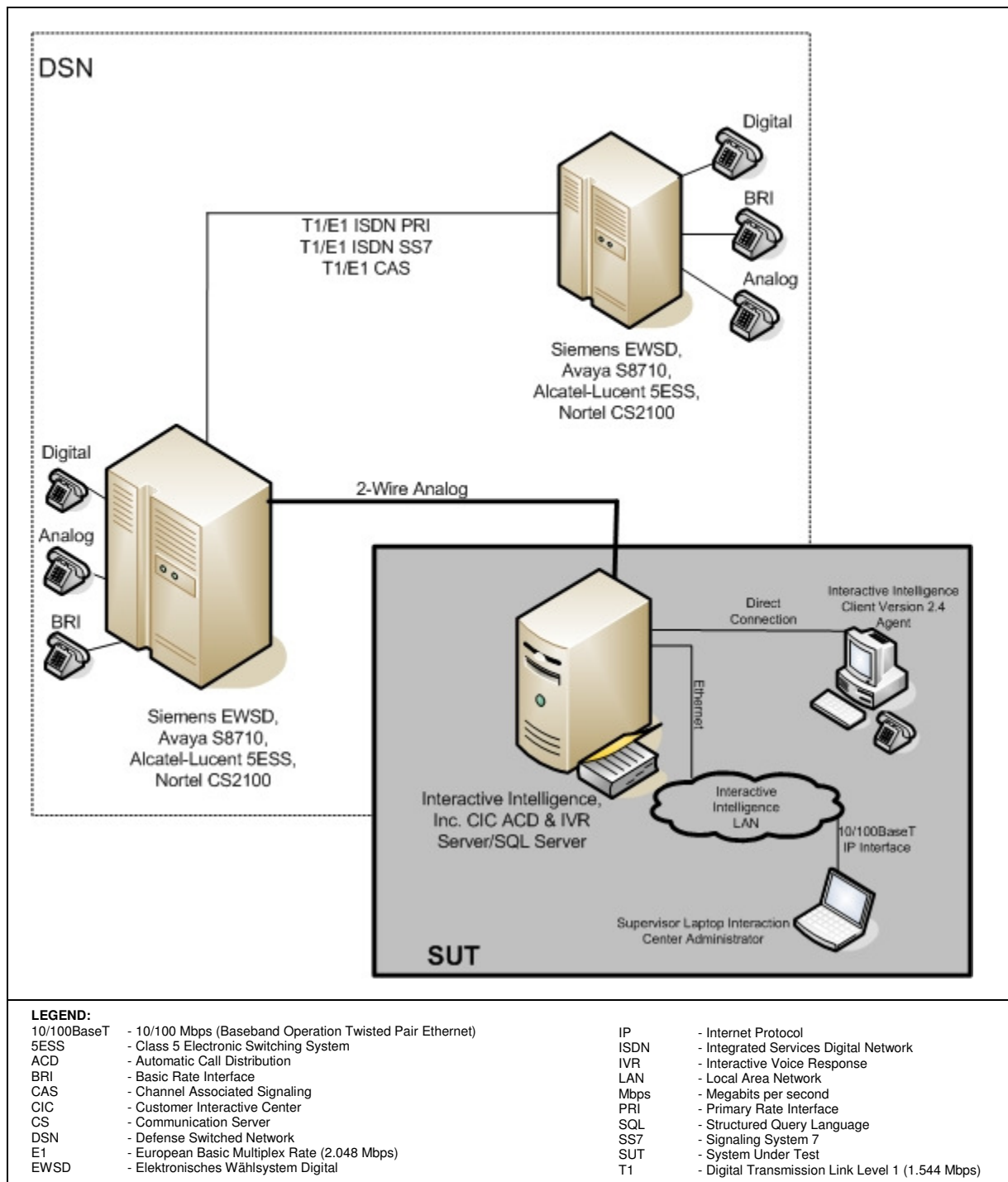
Figure 2-2. SUT Test Configuration (2-Wire Analog)

The figure contains the following legend:

LEGEND:	
10/100BaseT	- 10/100 Mbps (Baseband Operation Twisted Pair Ethernet)
5ESS	- Class 5 Electronic Switching System
ACD	- Automatic Call Distribution
BRI	- Basic Rate Interface
CAS	- Channel Associated Signaling
CIC	- Customer Interactive Center
CS	- Communication Server
DSN	- Defense Switched Network
E1	- European Basic Multiplex Rate (2.048 Mbps)
EWSD	- Elektronisches Wählsystem Digital
IP	- Internet Protocol
ISDN	- Integrated Services Digital Network
IVR	- Interactive Voice Response
LAN	- Local Area Network
Mbps	- Megabits per second
PRI	- Primary Rate Interface
SQL	- Structured Query Language
SS7	- Signaling System 7
SUT	- System Under Test
T1	- Digital Transmission Link Level 1 (1.544 Mbps)

LEGEND:

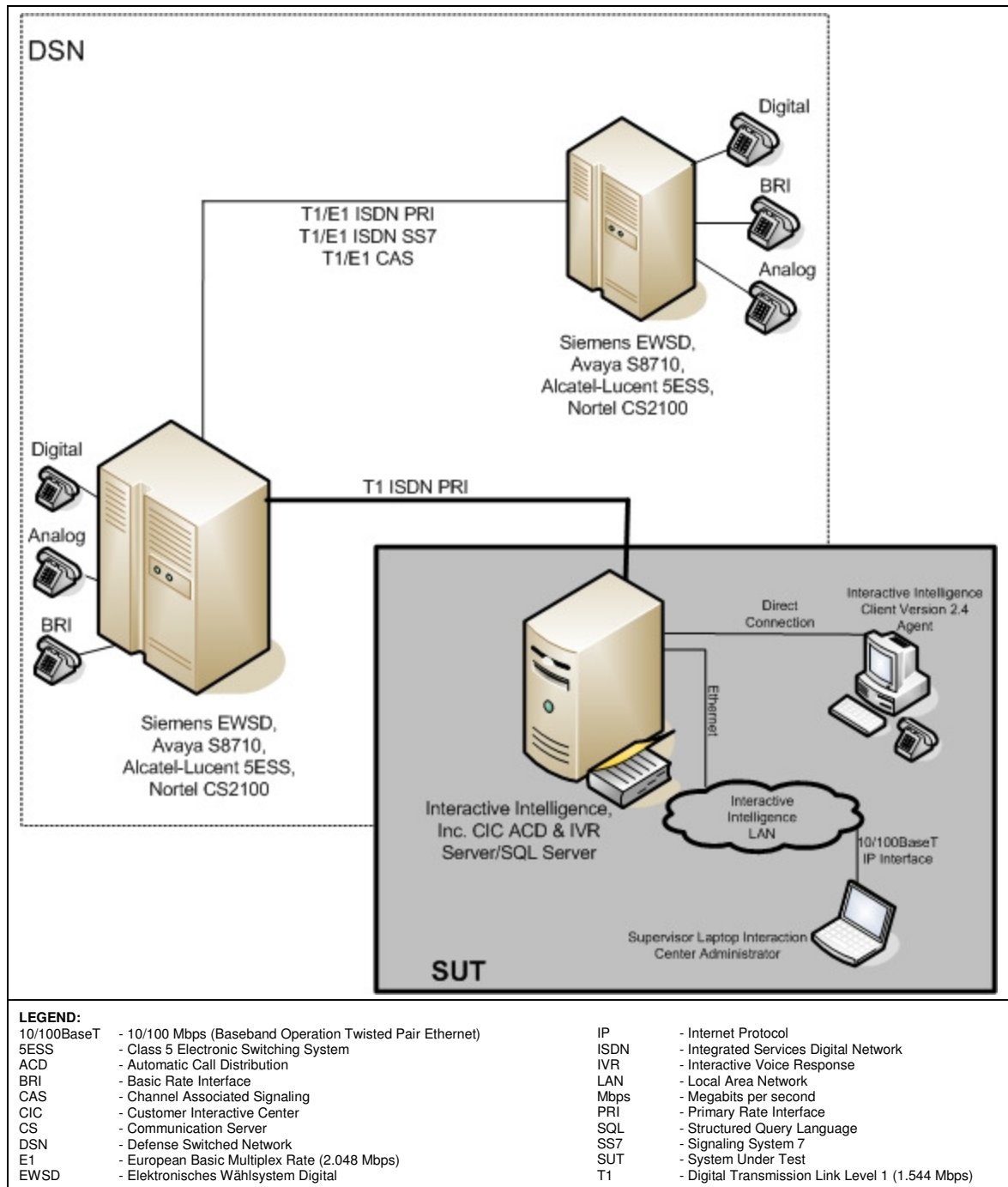|			
10/100BaseT	- 10/100 Mbps (Baseband Operation Twisted Pair Ethernet)	IP	- Internet Protocol
5ESS	- Class 5 Electronic Switching System	ISDN	- Integrated Services Digital Network
ACD	- Automatic Call Distribution	IVR	- Interactive Voice Response
BRI	- Basic Rate Interface	LAN	- Local Area Network
CAS	- Channel Associated Signaling	Mbps	- Megabits per second
CIC	- Customer Interactive Center	PRI	- Primary Rate Interface
CS	- Communication Server	SQL	- Structured Query Language
DSN	- Defense Switched Network	SS7	- Signaling System 7
E1	- European Basic Multiplex Rate (2.048 Mbps)	SUT	- System Under Test
EWSD	- Elektronisches Wählsystem Digital	T1	- Digital Transmission Link Level 1 (1.544 Mbps)

Figure 2-3. SUT Test Configuration (T1 ISDN PRI)

9. SYSTEM CONFIGURATIONS. Table 2-2 provides the system configurations, hardware and software components tested with the SUT. The SUT was tested in an operationally realistic environment to determine interoperability with a complement of DSN switches noted in table 2-2. The DSN switches listed in table 2-2 only depict the tested configuration. Table 2-2 is not intended to identify the only switch software releases that are certified with the SUT. The SUT is certified with switching systems listed on the DSN Approved Products List (APL) that offer the same certified interfaces.

Table 2-2. Tested System Configurations

System Name	Software Release	
Avaya S8710	Communication Manager (CM) 4.0 (R014x.00.2.731.7)	
Siemens EWSD	19d with Patch Set 46	
Nortel CS2100	Succession Enterprise (SE) 09.1	
Alcatel-Lucent 5ESS	5E16.2 Broadcast Warning Message (BWM) 07-0003	
SUT		
	Hardware	**Software/Firmware**
Interactive Intelligence Customer Interaction Center Release 2.4	HP Proliant DL 360 Server Intel ® Xenon Processor 3.20 GHz 2.0 GB RAM	Microsoft SQL Server Management Studio 9.00.1399.00 Microsoft Analysis Services Client Tool 2005.090.139 Microsoft Data Access Components (MDAC) 2000.86.395 Microsoft MSXML 2.3.6.0.4.0.6.0 Microsoft Internet Explorer 6.0.3790.3959 Microsoft.NET Framework 2.0.50727.832
	IBM Thinkpad T4 Laptop (Supervisor)	Interaction Center Version 2.4 Module: Interaction Administrator 2.400.10.12302 Microsoft Windows XP/.Net Version 5.2 (3790) Service Pack 2
	IBM PC (Agent) Intel ® Pentium ® M Processor 1.60 GHz, 768 MB RAM	Microsoft Windows XP Professional Version 2002 Service Pack 2 Vonexus Interaction Client.Net Edition 2.4

LEGEND:	
5ESS - Class 5 Electronic Switching System	GHz - Gigahertz
CS - Communication Server	MB - Megabyte
ESWD - Elektronisches Wählsystem Digital \	RAM - Random Access Memory
GB - Gigabyte	SUT - System Under Test

10. TEST LIMITATIONS. None.

11. TEST RESULTS

a. Discussion. The SUT IVR functional requirements were tested using the test configurations shown in figures 2-2 and 2-3. As required by the GSCR, switching systems are required to route only ROUTINE calls to automated receiving devices such as the SUT. This is required to insure that precedence calls above ROUTINE placed to the SUT are positively answered as required by the GSCR, paragraph 3.3. All switches on the DSN APL certified with a 2-wire analog interface meet this requirement with the SUT. However, only the Alcatel-Lucent Class 5 Electronic Switching System (5ESS), Compact Digital Exchange (CDX), and Very Compact Digital Exchange (VCDX), the Avaya S8700, S8710, and S8720, and the Siemens Elektronisches Wählsystem Digital (EWSD) switching systems meet the requirement to route only ROUTINE calls to the SUT when connected via a T1 ISDN PRI interface.

b. Test Conduct. Simulated intra-switch and inter-switch IVR calls were placed over analog and T1 ISDN PRI circuits using the test configurations shown in figures 2-2 and 2-3. The calls were successful and, when completed, properly disconnected. The SUT software applications that reside on the host server collected the caller information entered during the caller's session. The call was then routed to an agent based on their specific role as established by local management via a client application that resides on the agent's desktop or was properly transferred to designated directory number within the DSN. In addition, completed calls to the SUT were preempted within the simulated DSN to ensure that the proper preemption action occurred as required by the GSCR, section 3. All preempted calls received the proper preemption notification tone, were released, and returned to an idle state ready for the subsequent caller.

c. Test Summary. The SUT met the critical interoperability requirements for a CPE automatic receiving device with the interfaces shown in table 2-2, as set forth in reference (c), and is certified for joint use within the DSN. The SUT analog interface is certified for use with any switching system on the DSN Approved Products List (APL) that offers a certified analog interface. The SUT T1 ISDN PRI interface is certified specifically with the following switches on the DSN APL: the Alcatel-Lucent 5ESS, CDX, and VCDX, the Avaya S8700, S8710, and S8720, and the Siemens EWSD.

12. TEST AND ANALYSIS REPORT. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.